



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

A/b

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/028,766

12/28/2001

Satoshi Shimizu

216780US-2 DIV

4292

22850

7590

07/25/2002

OBLON SPIVAK MCCLELLAND MAIER & NEUSTADT PC
FOURTH FLOOR
1755 JEFFERSON DAVIS HIGHWAY
ARLINGTON, VA 22202

EXAMINER

NGUYEN, CUONG QUANG

ART UNIT

PAPER NUMBER

2811

DATE MAILED: 07/25/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicant No. 10/028,766	Applicant(s) SHIMIZU ET AL.	
	Examiner Cuong Q Nguyen	Art Unit 2811	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 10-13 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 10-13 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
 If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____. | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 2811

DETAILED ACTION

1. The preliminary amendment filed on 12/28/01 has been entered.

Oath/Declaration

2. The oath/declaration filed on 12/28/01 is acceptable.

Priority

3. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 08/874,410 filed on 06/13/1997.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or
(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

Claim 10 is rejected under 35 U.S.C. 102(e) as being anticipated by Fujii et al.

(US 5,776,822).

Art Unit: 2811

Fujii et al. discloses a MIS transistor device comprising: a silicon substrate (101) ; a gate insulating film (104) formed on the substrate; a gate electrode (a portion of a layer 115 which does not including two upper corners) formed on the gate insulating film, the gate electrode having an upper surface portion; a pair of sidewalls (106) formed on the substrate, on both sides of the gate electrode, wherein the sidewalls being higher than the gate electrode and being provided with silicon films (two upper corner of silicon layer 115) on walls closer to the gate electrode to be connected with gate electrode; the upper surface of gate electrode being silified up to surfaces of silicon films. See Fujii et al.'s Fig.1 (e).

Claim 12 is rejected under 35 U.S.C. 102(e) as being anticipated by Mathews et al. (US 5,702,986).

Mathews et al. discloses a MIS transistor device comprising: a silicon substrate (15) ; a gate insulating film (16) formed on the substrate; a gate electrode (11) formed on the gate insulating film and having a silified upper portion (12); a pair of L-shaped sidewalls (42) formed on the substrate, wherein the sidewalls being higher than the gate electrode. See Mathews et al.'s Fig.1.

Claim Rejections - 35 U.S.C. § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

Art Unit: 2811

the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fujii et al. in view of Lur et al. (US 5,554,566).

Fujii et al. teaches all limitations of claim 10 as shown above, However, Fujii et al. does not teach that a surface of the gate electrode being roughened.

Lur et al. discloses a transistor device comprises a surface (6B) of a gate electrode (4) having a roughness surface. See Lur et al.'s Fig.2.

It would have been for one ordinary skill in the art to incorporate the gate electrode having a roughness surface as taught by Lur et al. into Fujii et al.'s device in order to improve adhesion (reducing peeling phenomena) between the poly gate and the silicide layer. This rough surface also allows a less stress interface to be produced. See Lur et al.'s col.2 lines 1-8.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mathews et al. in view of Lur et al. (US 5,554,566).

Mathews et al. teaches all limitations of claim 10 as shown above, However, Mathews et al. does not teach that a surface of the gate electrode being roughened.

Lur et al. discloses a transistor device comprises a surface (6B) of a gate electrode (4) having a roughness surface. See Lur et al.'s Fig.2.

Art Unit: 2811

It would have been for one ordinary skill in the art to incorporate the gate electrode having a roughness surface as taught by Lur et al. into Mathews et al.'s device in order to improve adhesion (reducing peeling phenomena) between the poly gate and the silicide layer. This rough surface also allows a less stress interface to be produced. See Lur et al.'s col.2 lines 1-8.

Conclusion

6. Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 and 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

7. Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to CUONG Q NGUYEN whose telephone number is (703) 308-1293. The Examiner is in the Office generally between the hours of 6:30 AM to 5:00 PM (Eastern Standard Time) Monday through Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor TOM THOMAS who can be reached on (703) 308-2772. The fax phone

Serial Number: 10/028,766

Page 6

Art Unit: 2811

number for the organization where this application or proceeding is assigned is (703) 308-7722 or 308-7724.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center Receptionists whose telephone number is 308-0956.

A handwritten signature in black ink, appearing to read 'Cuong Nguyen', with a stylized, cursive script.

Cuong Nguyen

July 23, 2002